



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---|------------------|
| 10/541,691 | 04/13/2006 | Georg Bostanjoglo | 2002P17431WOUS | 1935 |
| <div>7590 03/20/2007 John P. Musone Siemens Corporation Intellectual Property Department 170 Wood Avenue South Iselin, NJ 08830</div> | | | <div>EXAMINER MALEKZADEH, SEYED MASOUD</div> <div>ART UNIT PAPER NUMBER 1722</div> | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 03/20/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/541,691

Applicant(s)

BOSTANJOGLO ET AL.

ExaminerSEYED MASOUD
MALEKZADEH**Art Unit**

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 07/08/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

An initialed and dated copy of Applicant's IDS form 1449 filed on 07/08/2005 is attached to the instant Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 24 recites the limitation "the process as claimed in claim 22" in first line of claim 24. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kear et al (US 4,250,229).

Claims 22 -24 are drawn to a product, which is obtained by the process and therefore will be treated as required via MPEP 2113 [R-1].

Art Unit: 1722

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." (MPEP 2113[R-1])

Kear et al (4,250,229) teaches a component formed from a metallic superalloy which has substrate having at least partially single-crystal structures, also has an intermediate layer having no single-crystal or directional structure in the substrate and a layer material with a single-crystal structure is present on the intermediate layer (See lines 29-36 column 3, lines 35-69 column 9, and lines 1-10 column 10). The prior art, thus, meets all the claim limitations, and therefore, Kear et al (4,250,229) anticipates the claims 22-24.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1722

Claims 11-15 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurz et al. (US 6,024,792) in view of Kear et al. (US 4,250,229)

Kurz et al ('024) discloses a method for producing single crystal structures from metallic superalloys by providing a substrate with a single-crystal structure from an epitaxial growth of a layer material via a first material application process. (See lines 58-67 column 1 and lines 21-33 column 33). Kurz et al ('024) further teaches applying an intermediate layer on the substrate (See lines 58-67 column 1 and lines 1-23 column 2). Kurz et al ('024) also teaches epitaxially growing the layer material on the intermediate layer. (See lines 5-34 and 64-67, column 2 and lines 1-6, column 3)

Kurz et al ('024) also teaches the substrate, a monocrystalline turbine blade is built up and further developed monocrystallinically layer by layer until the original size and shape of the workpiece has again been achieved. (See lines 19-23, column 2)

Kurz et al ('024) further teaches the substrate has a plurality of single-crystal structures from the epitaxial growth of the layer material. (See lines 22-48, column 2)

Kurz et al ('024) also teaches a heat treatment transforms at least part of the intermediate layer with the substrate and layer material into a region having a crystalline structure. (See lines 10-32, column 3)

Kurz et al ('024) further discloses the intermediate layer is applied with a directional microstructure (See lines 12-23, column 2). Furthermore, Kurz et al

Art Unit: 1722

('024) teaches material composition and composition ratio of constituents for the intermediate layer is adapted to a main composition ratio of main constituents of the substrate. (See lines 23-48 and 64-67 column 2 and lines 1-10, column 3)

However, Kurz et al ('024) does not teach the intermediate layer is not single crystal or directional structure on the substrate, also does not teach the intermediate layer is applied via a second material application process.

In the analogous art, Kear et al. ('229) discloses that interlayer foil with an amorphous metal structure produces an improved brazed or diffusion bonded structure (See lines 29-36, column 3) which the interlayer is neither a single crystal nor directional structure on the substrate. Also Kear et al ('229) teaches the intermediate layer is applied via a second application process.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kurz et al. ('792) by including a non single-crystal or non directional structure intermediate layer and applying the intermediate layer via a second application process in order to provide a ductile and formable inter-layers suitable for joining complex alloys, as suggested by Kear et al ('229).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurz et al. ('792) and Kear et al. ('229) as applied to claims 11-15 and 17-21 and further in view of Caballero (US 5,213,907).

Kurz et al ('792) and Kear et al ('229) discloses all the limitations of a process for producing single –crystal structures from metallic superalloys as

Art Unit: 1722

discussed above. However, they do not teach the intermediate layer is generated electrochemically.

In the analogous art, Caballero et al. ('907) discloses epitaxial deposition of a metal alloy such as Ni-B, Co-B, Ni-Co, Ni-Fe, Co-Fe, Ni-Co-Fe which are comparable with intermediate layer by an electrochemical process on a surface of a substrate. (See lines 14-23, column 2)

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kurz et al. ('792) and Kear et al ('229) by generating an intermediate layer electrochemically in order to perform the deposition of intermediate layer quicker and easier, as suggested by Caballero ('907).

Remarks

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Masoud Malekzadeh whose telephone number is 571-272-6215. The examiner can normally be reached on Monday – Friday at 8:30 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on (571) 272-1316. The fax number for the organization where this application or proceeding is assigned is 571-272-8300.

Art Unit: 1722

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SMM



ROBERT KUNEMUND
PRIMARY EXAMINER